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EXAMINER	
NOGUEROLA, ALEXANDER STEPHAN	

ART UNIT	PAPER NUMBER
1753	

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Please find below and/or attached an Office communication concerning this application or proceeding.

MV

Office Action Summary	Application No.	Applicant(s)
	10/020,769	BECKMANN, UDO
	Examiner	**Art Unit**
	ALEX NOGUEROLA	1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12 December 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 12/12/01.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Objections

1. Claim 8 is objected to because of the following informalities: inline 7 -- and – should be inserted sifter ";" at the end of the line.

2. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 4-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

a) the last three lines of Claim 4 are unclear. In line 6 -- ; wherein -- should be inserted between "signals" and "said". In line 7 -- , -- should be inserted between "converter" and "and". Also in line 7 "being" should be replaced with -- are --;

b) Claim 4, line 5: should -- , -- or -- ; -- be between "array" and "and"?

c) Claim 7 recites the limitation "the control algorithm" in line 4. There is insufficient antecedent basis for this limitation in the claim;

d) Claim 8 recites the limitation "digital connections of said analog-to-digital converter" in line 4. There is insufficient antecedent basis for this limitation in the claim;

e) Claim 8, lines 6-7: it is not clear whether just the microprocessor is integrated on a chip; and

f) Claim 8, lines 8-9: do the processed *signals* actually form a potentiostat circuit (electrical circuit)?

4. Note that dependent claims will have the deficiencies of base and intervening claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4, 5, 8, and 9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Dietze et al. (US 5,282,950).

Addressing Claim 1, Dietze et al. teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit integrated on a chip for operating the sensor electrode and for processing electrical signals received therefrom (col. 5, ll. 1-5), the operating electronic unit including a potentiostat circuit (element 45 in Figure 3 and see col. 6, ll. 8-15) and a microprocessor (col. 4, ll. 55-56) receiving and further processing

signals processed by the operating electronic unit, the potentiostat circuit being a digital control circuit whose controller function is controlled by the microprocessor (col. 5, ll. 6-27 and col. 7, ll. 56-62), the microprocessor being integrated on the chip of the operating electronic unit (col. 4, ll. 55-56 and col. 5, ll. 1-5).

Addressing Claim 4, Dietze et al. teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit with a digital control circuit including an analog-to-digital converter connected to the array (Figure 3), a digital-to-analog converter connected to the array (Figure 3) and a microprocessor with a control algorithm connected to digital connections of the analog-to-digital converter and the digital-to-analog converter (Figure 3; col. 4, ll. 55-56; col. 5, ll. 1-5; and col. 5, ln. 64 – col. 8, ln. 4) to from a potentiostat circuit (col. 5, ll. 6-27) and col. 7, ll. 56-62) with the microprocessor receiving and processing signals (Figure 3); wherein the microprocessor, the analog-to-digital converter and the digital-to-analog converter being integrated on a single chip (col. 5, ll. 1-5).

Addressing Claims 5 and 9, a multiplexer as claimed may be seen in Figure 3 (element 53).

Addressing Claim 8, Dietze et al. teaches a process for electrochemically sensing (abstract), the process comprising the steps of

providing a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

providing a digital control circuit including an analog-to-digital converter connected to the array (Figure 3), a digital-to-analog converter connected to the array (Figure 3) and a microprocessor (Figure 3; col. 4, ll. 55-56; and col. 5, ll. 1-5);

providing the microprocessor with a control algorithm (Figure 3; col. 4, ll. 55-56; col. 5, ll. 1-5; and col. 5, ln. 64 – col. 8, ln. 4);

providing the microprocessor connected to digital connections of the analog-to-digital converter and the digital-to-analog converter and integrated on a chip ((Figure 3; col. 4, ll. 55-56; and col. 5, ll. 1-5); and

processing signals at the microprocessor to form a form a potentiostat circuit controlling the potential difference on the sensor electrode array (col. 5, ll. 6-27 and col. 7, ll. 56-62).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 2, 3, 6, 7, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietze et al. (US 5,282,950) in view of Patko et al. (US 6,153,085)

Addressing Claim 2, Dietze et al. teaches an electrochemical sensor (abstract) comprising a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit integrated on a chip for operating the sensor electrode and for processing electrical signals received therefrom (col. 5, ll. 1-5), the operating electronic unit including a potentiostat circuit (element 45 in Figure 3 and see col. 6, ll. 8-15) and a microprocessor (col. 4, ll. 55-56) receiving and further processing signals processed by the operating electronic unit, the potentiostat circuit being a digital control circuit whose controller

function is controlled by the microprocessor (col. 5, ll. 6-27), the microprocessor being integrated on the chip of the operating electronic unit (col. 4, ll. 55-56 and col. 5, ll. 1-5)

Dietze et al. does not specifically mention a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters, although such a memory is arguably implied because the microprocessor is programmed to step through an operating sequence of five different operating states, in which measurement occurs in the fifth state (col. 5, ln. 64 – col. 8, ln. 4).

Patko et al. teaches an electrochemical sensor comprising a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters (abstract and col. 11, ll. 1-23. Note that the microprocessor and the memory may be in a single chip (col. 12, ll. 19-24)). It would have been obvious to one with ordinary skill in the art at the time the invention was made to proved a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters as taught by Patko et al. in the invention of Dietze et al. because this will allow the sensor to be prevented from being used again. One may wish to prevent reuse of the sensor if the sensor has degraded significantly or if the risk of cross-contamination from a previous sample is too high (see in Patko et al. col. 10, ll. 64-67. Also note that Patko et al. disclose telling the microprocessor "what kind of ion is to be measured by that particular sensor, quality control information, and the like" (col. 10, ll. 40-56)).

Addressing Claims 3, 7, and 11, as stated in the rejections of claims 2, 6, and 10, respectively, in Dietze et al. the microprocessor is programmed to step through an operating sequence of five different operating states. The first four operating states involve testing whether the sensor is in a satisfactory condition for making measurements. At least two of the operating states imply reading parameters from memory and using a control algorithm because these states each involve comparing a measurement to a threshold value (col. 6, ll. 34-53).

For Claim 7 note that the examiner assumed that this claim should depend from Claim 6, not Claim 4, which provides antecedent basis for “the control algorithm”.

Addressing Claim 6, Dietze et al. teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit with a digital control circuit including an analog to digital converter connected to the array (Figure 3), a digital-to-analog converter connected to the array (Figure 3) and a microprocessor with a control algorithm connected to digital connections of the analog-to-digital converter and the digital-to-analog converter (Figure 3; col. 4, ll. 55-56; col. 5, ll. 1-5; and col. 5, ln. 64 – col. 8, ln. 4) to from a potentiostat circuit (col. 5, ll. 6-27) with the microprocessor receiving and processing signals (Figure 3); wherein the microprocessor, the analog-to-digital converter and the digital-to-analog converter being integrated on a single chip (col. 5, ll. 1-5).

Dietze et al. does not specifically mention a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters, although such a memory is arguably implied

because the microprocessor is programmed to step through an operating sequence of five different operating states, in which measurement occurs in the fifth state (col. 5, ln. 64 – col. 8, ln. 4).

Patko et al. teaches an electrochemical sensor comprising a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters (abstract and col. 11, ll. 1-23. Note that the microprocessor and the memory may be in a single chip (col. 12, ll. 19-24)). It would have been obvious to one with ordinary skill in the art at the time the invention was made to proved a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters as taught by Patko et al. in the invention of Dietze et al. because this will allow the sensor to be prevented from being used again. One may wish to prevent reuse of the sensor if the sensor has degraded significantly or if the risk of cross-contamination from a previous sample is too high (see in Patko et al. col. 10, ll. 64-67. Also note that Patko et al. disclose telling the microprocessor "what kind of ion is to be measured by that particular sensor, quality control information, and the like" (col. 10, ll. 40-56)).

Addressing Claim 10, Dietze et al. teaches a process for electrochemically sensing (abstract), the process comprising the steps of

providing a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

providing a digital control circuit including an analog-to-digital converter connected to the array (Figure 3), a digital-to-analog converter connected to the array (Figure 3) and a microprocessor (Figure 3; col. 4, ll. 55-56; and col. 5, ll. 1-5);

providing the microprocessor with a control algorithm (Figure 3; col. 4, ll. 55-56; col. 5, ll. 1-5; and col. 5, ln. 64 – col. 8, ln. 4);

providing the microprocessor connected to digital connections of the analog-to-digital converter and the digital-to-analog converter and integrated on a chip ((Figure 3; col. 4, ll. 55-56; and col. 5, ll. 1-5); and

processing signals at the microprocessor to form a form a potentiostat circuit controlling the potential difference on the sensor electrode array (col. 5, ll. 6-27 and col. 7, ll. 56-62).

Dietze et al. does not specifically mention a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters, although such a memory is arguably implied because the microprocessor is programmed to step through an operating sequence of five different operating states, in which measurement occurs in the fifth state (col. 5, ln. 64 – col. 8, ln. 4).

Patko et al. teaches an electrochemical sensor comprising a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters (abstract and col. 11, ll. 1-23. Note that the microprocessor and the memory may be in a single chip (col. 12, ll. 19-24)). It would have been obvious to one with ordinary skill in the art at the time the invention

was made to proved a memory with stored operating parameters of the sensor electrode array, the microprocessor reading parameters from the memory to carry out a control algorithm depending on the parameters as taught by Patko et al. in the invention of Dietze et al. because this will allow the sensor to be prevented from being used again. One may wish to prevent reuse of the sensor if the sensor has degraded significantly or if the risk of cross-contamination from a previous sample is too high (see in Patko et al. col. 10, ll. 64-67. Also note that Patko et al. disclose telling the microprocessor "what kind of ion is to be measured by that particular sensor, quality control information, and the like" (col. 10, ll. 40-56)).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alex Noguerola
Primary Examiner
AU 1753
April 29, 2004